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PLANAR ARRAY OPTICAL SWITCH AND METHOD

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RELATED APPLICATION INFORMATION
This application is a CON of 10/222,750 filed on 8/15/200 now USPNO. 6,754,409 which is a CON of 09/326,122 filed on 4/4/1999, now USPNO. 6,426,711. This application claims priority from co-pending provisional application Serial No. 60/088,075, filed June 5, 1998.

FIELD OF THE INVENTION

The present invention relates generally to fiber optic switches, and, more particularly, concerns a device and method for direct switching of optical signals between input and output optical fibers with minimal optical losses.

BACKGROUND OF THE INVENTION

Due to advantages over conventional electrical transmission mediums such as increased bandwidth and improved signal quality, the use of fiber optics in communications networks has become commonplace. However, as with electrical signals transmitted over wires which need to be switched between various wires in order for the signals to reach their intended destinations, optical signals similarly need to be switched between different optical fibers at appropriate junctions so that the optical signals reach their intended destinations.

One method of switching an optical signal between fibers is to convert the optical signal to an electrical signal, employ conventional electronic switching components to switch the electrical signal, and then re-convert the electrical signal to an optical signal. An alternative approach is to employ direct optical switching wherein the optical signal is directed between fibers. The latter approach has distinct theoretical advantages, including an increase in switching speed and a reduction in signal degradation, because it eliminates the optical-to-electrical and electrical-to-optical conversions.

When implementing direct optical switching, it is desirable to have the capability to switch an optical signal from any one of a number of optical fibers entering a junction (input fibers) to any one of a number of optical fibers exiting a junction (output fibers). Several ways of achieving this have been previously proposed. One way is to bend the ends of the selected input and desired output fibers such that the two fibers point at one another (directly or via a folded optical pathway) providing a direct optical pathway for the optical signal between the fibers. The use of fixed reflectors, such as mirrors, in